L Number	Hits	Search Text	DB	Time stamp
24	4262	(calling or prepaid or phone) with card	USPAT	2002/10/01 16:21
25	5711	(pay or public) adj (telephone or phone)	USPAT	2002/10/01 16:08
26	339	((calling or prepaid or phone) with card) same ((pay or public) adj (telephone or phone))	USPAT	2002/10/01 16:12
27	2	(((calling or prepaid or phone) with card) same ((pay or public) adj (telephone or phone))) same fee	USPAT	2002/10/01 16:13
28	756	((calling or prepaid or phone) with card) and ((pay or public) adj (telephone or phone))	USPAT	2002/10/01 16:12
29	85	(((calling or prepaid or phone) with card) same ((pay or public) adj (telephone or phone))) and fee	USPAT	2002/10/01 16:13
30	12	(((calling or prepaid or phone) with card) same ((pay or public) adj (telephone or phone))) and (activat$5 with (fee or charge))	USPAT	2002/10/01 16:19
31	4	(((calling or prepaid or phone) with card) same ((pay or public) adj (telephone or phone))) same compensa$5	USPAT	2002/10/01 16:22
32	1861	(calling or prepaid or phone) adj card	USPAT	2002/10/01 16:21
33	25636	((calling or prepaid or phone) adj card) sam ((pay or public) adj (telephone or phone))	USPAT	2002/10/01 16:21
34	199	((calling or prepaid or phone) adj card) same ((pay or public) adj (telephone or phone))	USPAT	2002/10/01 16:21
35	2	(((calling or prepaid or phone) adj card) same ((pay or public) adj (telephone or phone))) same compensa$5	USPAT	2002/10/01 16:22
36	19	(((calling or prepaid or phone) adj card) same ((pay or public) adj (telephone or phone))) and compensa$5	USPAT	2002/10/01 16:28
37	407	((calling or prepaid or phone) adj card) and ((pay or public) adj (telephone or phone))	USPAT	2002/10/01 16:28
38	34	(((calling or prepaid or phone) adj card) and ((pay or public) adj (telephone or phone))) and compensa$6	USPAT	2002/10/01 16:29

US-PAT-NO: 6351453

DOCUMENT-IDENTIFIER: US 6351453 B1

TITLE: Internet service provider (ISP) finder

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The present invention therefore provides effective monitoring of various systems of a public telephone network and processing of the data derived from such monitoring, to enable analysis of various patterns of the traffic through the telephone network. The pattern analysis and recognition identifies destinations associated with certain types of users, such as ISPs. The system then facilitates analysis of traffic through the network to the identified destinations, for various engineering and business purposes. In the preferred embodiments, the monitoring involves capture of interoffice signaling messages and accumulation of certain accounting records, relating to inter-office and intra-office telephone calls through the network. To facilitate understanding of the invention, it may be helpful at this point to review the structure and operation of the telephone network, in some detail.

Another issue that arises is reciprocal compensation for CLECs. In particular, problems arise over compensation relating to Internet access traffic. LECs argue that these calls should not be subject to reciprocal compensation because they are not intra-LATA calls, under the definition of the Telecom Act. A call bound for the Internet should be an inter-LATA call. Prior to the invention, there was no way to measure such calls from a LEC to an ISP subscribing to telephone service through a CLEC. As dicussed above, one application of the traffic track technology relates to finding ISP telephone numbers (see ISP finder notes). This approach actually finds ISP numbers even if served through a CLEC. Having identified the ISP numbers within the CLEC network, a study of the traffic across the trunk connections between the LEC network 3.sup.1, and the CLEC network 3.sub.2 can determine the percentage of calls that the LEC terminates to the CLEC that actually are Internet related.

For example, in one study of a CLEC during one 24-hour period, 28% of the traffic, the MOU, was Internet bound. Potentially the LEC could discount 28% of the reciprocal compensation if the LEC had a ruling from the utility commission conceding that such calls are not subject to reciprocal

compensation.

For a finder of a different type of service, e.g. calls to a prepaid calling card service, the thresholds would be set up to look for a different average hold time, e.g. under 30 seconds in the calling card example.

As discussed, the invention meets a need to find specific patterns of traffic, for example to identify ISPs. There also is a need to find other frequently called users, like calling card service owners, prepaid calling card numbers, credit card verification systems, and the like. For example, the LEC should be getting revenue for calls made to prepaid calling card numbers, for example from a coin phone. There is an arrangement where the LEC is supposed to receive 20 cents or 25 cents for every call from a coin phone to a prepaid calling card number. However, this is limited to only for those calls that the LEC can record in its billing system. If the call is under 40 seconds, existing billing systems never record the call. The LEC needs to find such calls. In essentially a reverse of the ISP finder routine, the invention can identify numbers that received a large volume of terminating calls but had real short duration calls, for example, 50,000 calls that all lasted under 30 seconds. In sample studies of this type, it was found that the numbers were to pre-paid calling card systems.

The inventive traffic track system identifies the telephone number. Once the traffic track system has identified the number, the system could automatically send them to the LMOS database or something like that and obtain information. LMOS or the like would initiate a test of the line associated with the number, to see what is on the end of the line and automatically qualify the line as that of a calling card system. To recapture the revenues, the LEC then modifies the switches and billing system to measure those calls to such numbers, which were from coin phones, even if under 30 or 40 seconds.